

AN UPDATE ON SYNOPTIC CATALOGUE OF LAC INSECTS (HOMOPTERA : TACHARDIIDAE)¹

K. KRISHAN SHARMA AND R. RAMANI²

Key words: Homoptera, Tachardiidae, lac insects

Members of the family Tachardiidae (= Kerriidae) produce lac and certain species are exploited for their economically important products viz., resin, dye and wax. An updated checklist of world species is provided. It includes two subfamilies, nine genera and eighty-seven species. The systematic list provides name of species, author, year of description, synonym(s) if any, and country (state/region) of occurrence. Taxa and species are listed in alphabetical order. The bibliography includes citations of each taxa for reference and taxonomic purposes.

INTRODUCTION

Lac insects are degenerate scale insects, belonging to the family Tachardiidae and are well known for their commercially important products viz. resin, dye and wax. Kerr (1782) was the first to study a species of lac insect in detail and named it *Coccus lacca* which is now known as *Kerria lacca* (Kerr). A separate identity to lac insects was given by Oken (1815) who placed them under genus *Laccifer*. The taxonomic aspects of lac insects, however, remained obscure, till Chamberlin (1923) gave the first description of lac insects of the world which he later supplemented (Chamberlin, 1925). Kapur (1958) prepared a catalogue of lac insects and Varshney (1977) described all the oriental species in detail. Varshney (1990) also published a brief catalogue of lac insects, reporting eight genera and 77 species as well as a world list of lac insects (Varshney, 1993) in which some of the taxa have been mentioned as *nomen nudum*. Later, Zhang (1993) described some more species. The list recently updated by Varshney (1997) contains no bibliographic references to the newly discovered taxa and the species which were earlier described as *nomen nudum*. Moreover, the list is incomplete. Thus, at present, lac insects are represented by two subfamilies, nine genera and

eighty-seven species. The updated systematic list given here provides: name of species, author, year of description, synonym(s) if any and country (state/region) of their occurrence in that order. A consolidated list of bibliographic references to all the taxa reported in the checklist has been provided.

CHECKLIST

Family: **Tachardiidae** Green 1896 [Syn. **Lacciferidae** Cockerell, 1924; **Kerriidae** Lindinger 1937]

Subfamily: **Tachardiinae** (Nominate) [Syn. **Lacciferinae** Chamberlin 1925].

Tribe: **Austrotachardiini** Chamberlin 1925 [Syn. **Austrotachardinina** Balachowsky 1950].

I. **Austrotachardia** Chamberlin 1923.

[Type species: *Tachardia angulata* Froggatt].

1. *A. acaciae* (Maskell 1891). Australia (Central Australia and New South Wales).
2. *A. angulata* (Froggatt 1911). Australia (New South Wales).
3. *A. australis* (Froggatt 1899). Australia (Queensland).
4. *A. convexa* (Fuller 1899). Australia (Western Australia).
5. *A. melaleucaae* (Maskell 1891). Australia (New South Wales, Victoria and Western Australia).

¹Accepted December, 1997

²Division of Transfer of Technology,
Indian Lac Research Institute,
Namkum, Ranchi 834 010.

Tribe **Tachardiini** (Nominate) [Syn. **Lacciferinina** Balachowsky 1950]

Subtribe **Tachardielli** Chamberlin 1925
[Syn. **Tachardiellina** Williams 1969].

II. **Austrotachardiella** Chamberlin 1923.

[Type species: *Tachardia rotundata* Cockerell].

6. *A. bodkini* (Newstead 1917). Guyana.
7. *A. cydoniae* (Hempel 1900). [Syn. *Tachardia rosae* Hempel 1900; *Tachardia caerulea* Hempel 1904]. Brazil.
8. *A. gemmiferra* (Cockerell 1893). Jamaica.
9. *A. nigra* (Townsend & Cockerell 1898). Mexico (Vera Cruz and Jalisco).
10. *A. rotundata* (Cockerell 1903). Mexico.
11. *A. rubra* (Hempel 1900). Brazil.
12. *A. trilobata* (Mendes 1936). Brazil.

III. **Tachardiella** (Cockerell 1901).

[Type species: *Tachardia cornuta* Cockerell].

13. *T. argentina* (Dominguez 1906). Argentina.
14. *T. artocarpi* (Hempel 1921). Brazil.
15. *T. condaliae* (Leonardi 1911). [Syn. *Tachardia cordaliae* Leonardi 1911]. Argentina.
16. *T. cornuta* (Cockerell 1894). U.S.A. (New Mexico and Texas) and Mexico.
17. *T. ferrisi* Chamberlin 1923. Mexico.
18. *T. fulgens* (Cockerell 1895). U.S.A. (Arizona) and Mexico.
19. *T. glomerella* (Cockerell 1905). [Syn. *T. glomerella* var. *baccharidis* Chamberlin 1923]. U.S.A. (California, New Mexico and Texas).
20. *T. ingae* (Hempel 1900). Brazil.
21. *T. larreae* (Comstock 1882). [Syn. *T. larreae* var. *californica* Chamberlin 1923]. U.S.A. (Arizona, California and Nevada) and Mexico.
22. *T. lycii* (Leonardi 1911). Argentina.
23. *T. mexicana* (Comstock 1882). [Syn. *Tachardia fulvoradiata* Cockerell 1898; *Tachardiella texana* Chamberlin 1923]. U.S.A. (Texas) and Mexico.

24. *T. nigra* Fonseca 1975. Brazil (Sao Paulo).
25. *T. ourinhensis* Hempel 1937. Brazil.
26. *T. parva* (Hempel 1900). Brazil.
27. *T. pustulata* (Cockerell 1895). U.S.A. (Arizona and California).

Subtribe **Tachardii** (Nominate) [Syn. **Lacciferi** Chamberlin 1925].

IV. **Kerria** Targioni-Tozzetti 1884.

[Syn. **Laccifer** Oken 1815; **Carteria** Signoret 1874; **Tachardia** Blanchard 1886; **Lakshadia** Mahdihassan 1923].

[Type species: *Coccus lacca* Kerr].

i. Subgenus **Kerria** (Nominate).

28. *K. (K.) albizziae* (Green 1911). India (Bihar, Uttar Pradesh and West Bengal) and Sri Lanka.
29. *K. (K.) brancheata* Varshney 1966. India (Bihar).
30. *K. (K.) chamberlini* Varshney 1966. India (Rajasthan).
- 31a. *K. (K.) chinensis chinensis* (Mahdihassan 1923). [Syn. *Laccifer longispina* Misra 1930; *Laccifer siamensis* Takahashi 1941]. Bhutan, China (South China), Cambodia, India (N.E. India), Myanmar (=Burma), Nepal, Thailand and Vietnam.
- 31b. *K. (K.) chinensis kydia* (Misra 1930). India (Assam).
32. *K. (K.) communis* (Mahdihassan 1923). India (Andhra Pradesh, Goa, Karnataka, Kerala, Maharashtra and Tamil Nadu).
33. *K. (K.) ebracheata* (Chamberlin 1923). India (Bihar and Karnataka), and Pakistan.
- 34a. *K. (K.) fici fici* (Green 1903). China, India (Bihar, Delhi, Jammu & Kashmir, Rajasthan, Uttar Pradesh and West Bengal), Pakistan and Thailand.
- 34b. *K. (K.) fici jhansiensis* (Misra 1930). India (Uttar Pradesh).
35. *K. (K.) indicola* (Kapur 1958). [Syn. *Laccifer indica* Misra 1930]. India (Bihar).

- 36a. *K. (K.) lacca lacca* (Kerr 1782). [Syns. *Coccus ficus* Fabricius 1787; *Lakshadia indica* Mahdihassan 1923]. Bangladesh, China, Georgia, India, Malaysia, Myanmar, Nepal, Pakistan, Sri Lanka, Taiwan and Thailand.
- 36b. *K. (K.) lacca ambigua* (Misra 1930). India (Uttar Pradesh).
- 36c. *K. (K.) lacca mysorensis* (Mahdihassan 1923). India (Karnataka).
- 36d. *K. (K.) lacca takahashii* Varshney 1977. Thailand.
37. *K. (K.) mengdingensis* Zhang 1993. China (Yunnan).
38. *K. (K.) nagoliensis* (Mahdihassan 1923). India (Madhya Pradesh).
39. *K. (K.) nepalensis* Varshney 1977. India (Bihar) and Nepal.
40. *K. (K.) pusana* (Misra 1930). India (Bihar).
41. *K. (K.) ruralis* (Wang, Yao, Teui & Liang 1892). China (Yunnan).
42. *K. (K.) sharda* sp. nov. Mishra and Sushil 2000.
43. *K. (K.) sindica* (Mahdihassan 1923). Pakistan (Sind).
44. *K. (K.) yunnanensis* Ou & Hong 1990. China (Yunnan).
- ii. Subgenus *Chamberliniella* Varshney 1987. [Syn. *Chamberlinia* Varshney 1984]. [Type species: *Tachardia greeni* Chamberlin].
45. *K. (C.) greeni* (Chamberlin 1923). Philippines, Taiwan and Thailand.
46. *K. (C.) javana* (Chamberlin 1925). Indonesia (Java) and Malaysia.
47. *K. (C.) meridionalis* (Chamberlin 1923). Australia (New South Wales and Victoria).
48. *K. (C.) rangoonensis* (Chamberlin 1925). India (Assam) and Myanmar.
- V. *Metatachardia* Chamberlin 1923. [Type species: *Tachardia conchiferata* Green].
49. *M. conchiferata* (Green 1922). Sri Lanka.
50. *M. fukienensis* Zhang 1993. China (Fukien).
51. *M. hunanensis* Zhang 1993. China (Hunan).
52. *M. myrica* Tang 1974. China (Chekiang).
53. *M. sinensis* Zhang 1993. China (Changyan-Yunnan).
54. *M. yunnanensis* Zhang 1992. China (Changyan-Yunnan).
- Subfamily **Tachardininae** Chamberlin 1925. [Syn. **Tachardini** and **Tachardinina** of Balachowsky 1950; Type genus: *Tachardina* Cockerell 1901].
- VI. *Afrotachardina* Chamberlin 1923. [Type species: *Tachardia longisetosa* Newstead].
55. *A. brachysetosa* Chamberlin 1923. Uganda.
56. *A. longisetosa* (Newstead 1911). Uganda.
- VII. *Albotachardina* Zhang 1992a. [Type species: *Albotachardina yunnanensis* Zhang].
57. *A. sinensis* Zhang 1992a. China (Yunnan).
58. *A. yunnanensis* Zhang 1992a. China (Yunnan).
- VIII. *Paratachardina* Balachowsky 1950. [Type species: *Carteria decorella* Maskell].
59. *P. capsella* Wang 1986. China (Yunnan).
60. *P. decorella* (Maskell 1892). Australia (New South Wales and Victoria).
- 61a. *P. lobata* (Green 1922). [Syn. *Tachardia minuta* Green 1922 (nec Morrison)]. India. (Andhra Pradesh, Karnataka and Tamil Nadu) and Sri Lanka.
- 61b. *P. lobata* var. *schmidti* (Mahdihassan 1946). India (Karnataka).
- 61c. *P. lobata* var. *walczuchae* (Mahdihassan 1946). India (Karnataka).
62. *P. minuta* (Morrison 1920). Philippines.
63. *P. mithilae* Varshney 1968. India (Meghalaya).

64. *P. morobensis* sp. nov. New Papua Guinea.
 65. *P. silvestrii* (Mahdihassan 1923). India (Karnataka).
 66. *P. ternata* (Chamberlin 1923). India (Kerala).
 67. *P. theae* (Green & Mann 1907). India (Sikkim and West Bengal) and Taiwan.

IX. *Tachardina* (Cockerell 1901).

[Type species: *Tachardia albida* Cockerell].

68. *T. actinella* (Cockerell & King 1901). [Syn. *Tachardia digitata* Munting 1965]. Mozambique (?), South Africa and Zimbabwe.
 69a. *T. affluens* (Brain 1920). Saudi Arabia and South Africa.
 69b. *T. affluens* var. *coagulata* Hall 1935. South Africa (Transvaal).
 69c. *T. affluens* var. *natalensis* Hall 1935. South Africa (Natal).
 70. *T. africana* Hall 1935. Mozambique (?), South Africa and Zimbabwe.
 71. *T. albida* (Cockerell 1901) South Africa and Zimbabwe.
 72. *T. aurantiaca* (Cockerell 1903). Indonesia (Java), Singapore and Thailand. Varshney

- (1990 and 1993) has cast doubt over its taxonomical placing.
 73. *T. bernardi* Balachowsky 1950. 'Central Sahara' [Algeria].
 74. *T. brachystegiae* Hall 1935. Zimbabwe.
 75. *T. dicipterae* Hall 1935. Zimbabwe.
 76. *T. gripha* Munting 1966. South Africa.
 77. *T. karroo* (Brain 1920). South Africa (Cape).
 78. *T. leredei* Balachowsky 1950. 'Central Sahara' [Algeria].
 79. *T. minor* (Brain 1920). South Africa (Cape).
 80. *T. oligopora* Munting 1966. South Africa.
 81. *T. perplexa* Munting 1973. South Africa.
 82. *T. protrudens* Munting 1965. South Africa.
 83. *T. psiadiae* Mamet 1953. Madagascar.
 84. *T. recurva* Munting 1973. South Africa (Cape).
 85. *T. sclerosa* Munting 1965. South Africa.
 86. *T. spinosa* Munting 1966. South Africa.
 87. *T. tismbazae* Mamet 1953. Madagascar.

ACKNOWLEDGEMENTS

We thank the Director, ILRI for encouragement and Dr. R.K. Varshney, the then Additional Director, Zoological Survey of India for going through the list of species.

REFERENCES

- BALACHOWSKY, A. (1950): Sur deux *Tachardina* Ckll. (Coccoidea-Lacciferinae) nouveaux du Sahara Central. *Eos* 26(1): 7-17.
 BLANCHARD, R. (1886): *Zoologie Medicale Vol. 1: 1*.
 BRAIN, C.K. (1920): The Coccidae of South Africa-IV. *Bull. Ent. Res.*, 10(2): 95-128.
 CHAMBERLIN, J.C. (1923): A systematic monograph of the Tachardiinae or lac insects (Coccidae) *Bull. Ent. Res.* 14(2): 147-212.
 CHAMBERLIN, J.C. (1925): Supplement to a monograph of the Lacciferidae (Tachardiinae) or lac insects (Coccidae). *Bull. Ent. Res.* 16(1): 31-41.
 COCKERELL, T.D.A. (1893): A new lac insect from Jamaica. *Canad. Ent.* 25: 181-183.
 COCKERELL, T.D.A. (1894): A check list of the nearctic Coccidae. *Canad. Ent.* 26: 31-36.
 COCKERELL, T.D.A. (1895): New North American Coccidae. *Psyche. Camb. Mass.* 7 (Suppl.): 1-4.
 COCKERELL, T.D.A. (1898): New Coccidae from Mexico. *Ann. Mag. nat. Hist.* (7th ser.) 1: 426-443.
 COCKERELL, T.D.A. (1901): South African Coccidae. *Entomologist* 34: 248-250.
 COCKERELL, T.D.A. (1903): Two remarkable new Coccidae. *Canad. Ent.* 35: 64-66.
 COCKERELL, T.D.A. (1905): A new lac insect. *Ent. News* 16: 52.
 COCKERELL, T.D.A. (1924): The name of the lac insects. *Psyche* 31(1): 47-48.
 COCKERELL, T.D.A. & G.B. KING (1901): A new lac insect from South Africa. *Entomologist* 34: 342.
 COMSTOCK, J.H. (1882): Report of the Entomologist. United States Department of Agriculture. Lac insects. In: U.S. Dept. Agr., Comnr. Agr. Report 1881-1882: 209-214.

SYNOPTIC CATALOGUE OF LAC INSECTS

- DOMINGUEZ IN EUGENIO AUTRAN (1906): Las Cochenillas Argentines. *Trab. Mus. Farn No.18*: 14.
- FABRICIUS, J.C. (1787): *Mantissa Insectorum* 2: 318-319.
- FONSECA, J.P. DA (1975): Three new species of coccoids from Brazil. *Sao Paulo Inst. Biol. Arq.* 42: 79-84.
- FROGGATT, W.W. (1899): A descriptive catalogue of the scale insects (Coccidae) of Australia. *Agri. Gaz. N.S.W.* 10: 1160.
- FROGGATT, W.W. (1911): Description of a new lac-coccid (Genus *Tachardia*) from New South Wales. *Proc. Linn. Soc. N.S.W.* 36: 154.
- FULLER, C. (1899): Notes and descriptions of some species of Western Australian Coccidae. *Trans. Ent. Soc. Lond.* 1899: 435-473.
- GREEN, E.E. (1896): Coccidae of Ceylon I. Dulau & Co., London: 3, 16-17.
- GREEN, E.E. (1903): Remarks on Indian scale insects (Coccidae) with descriptions of new species. *Indian Mus. Notes* 5(3): 93-103.
- GREEN, E.E. (1911): On some Coccidae affecting rubber trees in Ceylon, with descriptions of new species. *J. Econ. Biol.* 6: 27-37.
- GREEN, E.E. (1922): Sub-family Tachardiinae. Coccidae of Ceylon 5. Dulau & Co., London: 402-416.
- GREEN, E.E. & H.H. MANN (1907): The Coccidae attacking tea plants in India and Ceylon. *Mem. Dept. Agr. India (Ent. ser.)* 1(5): 337-355.
- HALL, W.J. (1935): The genus *Tachardia* (Lacciferidae, Coccidae) in Southern Africa. *Bull. Ent. Res.* 26(4): 475-486.
- HEMPEL, A. (1900): As Coccidas Brasileiras. *Rev. Mus. Paul.* 4: 465-527.
- HEMPEL, A. (1904): *Bol. Agr. Sao Paulo* 5: 314. (vide Chamberlin, 1923).
- HEMPEL, A. (1921): Trio novos coccideos. *Arch. Esc. Agri. Med. vet. (Nicttheroy) Rio de J.* 5(1-2): 143-146.
- HEMPEL, A. (1937): Novas especies de coccideos (Homoptera) do Brazil. *Arch. Inst. biol. Def. agric. anim., S. Paulo* 8: 5-36.
- KAPUR, A. P. (1958): A Catalogue of Lac insects (Lacciferidae, Hemiptera). Indian Lac Cess Comm., Ranchi: 47 pp.
- KERR, J. (1782): Natural history of the insect which produces the gum lacca. *Phil. Trans. R. Soc. London.* 71 [1781] (2): 374-382.
- LEONARDI, G. (1911): Contributo alla conoscenza della Cocciniglie della Republica Argentina. *Boll. Lab. Zool. Portici* 5: 256-258.
- LINDINGER, L. (1937): Verzeichnis der Schildlaus - Gattungen (Homoptera - Coccoidea Handlirsch 1903). *Ent. Jahrb.* 46: 178-198.
- MAHDIHASSAN, S. (1923): Classification of lac insects from physiological standpoint. *J. Sci. Asso. Maharajah's College, Vizianagaram* 1(2&3): 47-99.
- MAHDIHASSAN, S. (1946): Two varieties of *Tachardia lobata*. *Curr. Sci.* 15: 135-136.
- MAMET, R. (1953): Notes on the Coccoidea of Madagascar, III. *Mem. Inst. Sci. Madagascar (E)* 4: 1-86.
- MASKELL, W.M. (1891): Further coccid notes: with descriptions of new species and remarks on coccids from New Zealand, Australia and elsewhere. *Trans. Proc. N.Z. Inst.* 24: 1-64.
- MASKELL, W.M. (1892): Further coccid notes: with descriptions of new species from Australia, India, Sandwich Islands, Demerara and South Pacific. *Trans. Proc. N.Z. Inst.* 25: 201-252.
- MENDES, D. (1936): Uma nova especie do genero *Tachardiella* Cock. (Homopt., Coccidae). *Rev. de Ent.* 6: 374-376.
- MISRA, A.B. (1930): On a collection of lac insects from Northern India. *Bull. Ent. Res.* 21: 161-164.
- MISHRA, Y.D. & S.N. SUSHIL (in press): A new trivoltine species of *Kerria* Targioni-Tozzetti (Homoptera : Tachardiidae) on *Schleichera oleosa* (Lour.) Oken eastern India *Oriental Ins.*
- MORRISON, H. (1920): The nondiaspine Coccidae of the Philippine Islands, with descriptions of apparently new species. *Philippine J. Sci.* 17(2): 147-202.
- MUNTING, J. (1965): Lac insects (Homoptera : Lacciferidae) from South Africa. *J. Ent. Soc. S. Africa.* 28: 32-43.
- MUNTING, J. (1966): Lac insects (Homoptera n n n: Lacciferidae) from South Africa - II. *Rev. Zool. Bot. Africanas.* 74(1-2): 121-134.
- MUNTING, J. (1973): Further descriptions of African lac insects. *Phytophylactica* 5: 59-64.
- NEWSTEAD, R. (1911): Observations on African scale-insects (Coccidae). *Bull. Ent. Res.* 2: 85-104.
- NEWSTEAD, R. (1917): Observations on scale-insects (Coccidae). *Bull. Ent. Res.* 8: 1-34.
- OKEN, L. (1815): *Lehrbuch der Naturgeschichte. Sect. 3 (Zool. 1)*: 430.
- OU, B. & G. HONG (1990): Description of a new species *Kerria* in Yunnan Province. *Entomotaxonomia* 12(1): 15-18.
- SIGNORET, V. (1874): Essai sur les Cochenilles ou Gallinsectes (Homopteres: Coccides). *Ann. Soc. Ent. France* (5) 4: 101-105.
- TAKAHASHI, R. (1941): Lacciferidae of Siam (Homoptera). *Trans. Nat. Hist. Soc. Formosa* 31: 138-141.
- TANG, F.T. (1974): A preliminary report on the lac insect fauna with description of a new species. *Acta Ent. Sinica* 17(2): 205-209.
- TARGIONI-TOZZETTI, A. (1884): Relazione intorno ai Lavori

- della R. Stazione di Entomologia Agraria di Firenze per Gli anni 1879-80-81-82. Article V-Omotteri. *Ann. di Agr.* 1884, *Min. di Agr. Ind. e. Com. Italy* (86-89): 383-414.
- TOWNSEND, C.H.T. & T.D.A. COCKERELL (1898): Coccidae collected in Mexico by Messrs Townsend and Koebele in 1897. *J.N.Y. ent. Soc.* 6: 172-173.
- VARSHNEY, R.K. (1966): Two new insects from India (Homoptera : Tachardiidae). (Abstract) *Proc. 53rd Indian Sci. Congr. III*: 356-357.
- VARSHNEY, R.K. (1968): Revision of the systematics of lac insects (Tachardiidae, Homoptera), Part I-Subfamily Tachardininae. (Abstracts.). *Proc. 55th Indian Sci. Congr. III*: 488-489.
- VARSHNEY, R.K. (1977): Taxonomic studies on lac insects of India. *Oriental Ins. Suppl. No. 5(1976)*: 97 pp.
- VARSHNEY, R.K. (1984): A review of the family Tachardiidae (Kerridae) in the Orient. *Oriental Ins.* 18: 361-384.
- VARSHNEY, R.K. (1987): New name for the preoccupied Chamberlinia Varshney. *Oriental Ins.* 21: 361-362.
- VARSHNEY, R.K. (1990): A synoptic catalogue of lac insects (Homoptera : Coccoidea : Tachardiidae). *Proc. 6th International Symp. of Scale Insect Studies, Cracow, 1990 (Pt. 2)*: 71-74.
- VARSHNEY, R.K. (1993): World list of lac insects. *Indian Shellac. Annual number (1992-93)*: 13-15 (Publ. March, 1993).
- VARSHNEY, R.K. (1997): An up-to-date list of the lac insects of the world. *Proc. of the National Seminar on Lac Industry - Challenges and Solutions*. pp. 27-31. held on 14-15 June, 1996 at Indian Lac Research Institute, Namkum, Ranchi (India).
- WANG, T.C. (1986): A new species of *Paratachardina* Balachowsky. *Acta Ent. Sinica* 29(2): 196-198.
- WANG, T.C., T.F. YAO., S.Y. TEUI & Z.J. LIANG (1982): A new species of *Laccifer* with preliminary studies on the biological characteristics. *Scientia Silvae Sinicae*. 18(1): 53-57.
- WILLIAMS, D.J. (1969): The Family-group names of the scale insects (Hemiptera : Coccoidea). *Bull. Br. Mus. Nat. Hist. (Ent.)* 23(8): 317-341.
- ZHANG, Z.S. (1992): A new species of *Metatachardia* (Chamberlin) from Yunnan, China. *Oriental Ins.* 26: 383-385.
- ZHANG, Z.S. (1992a): Description of a new genus and two new species of lac insects (Homoptera: Tachardiidae). *Oriental Ins.* 26: 386-390.
- ZHANG, Z.S. (1993): Four new species of lac insects of the genera *Metatachardia* and *Kerria* from China (Homoptera: Tachardiidae). *Oriental Ins.* 27: 273-286.

